

W.Q. LIB  
3046 R. (24)

STANDARDS DEVELOPMENT BRANCH CHIEF  
36936000010163



TOWNSHIP OF MARKHAM - 1966  
COUNTY OF YORK

THE  
ONTARIO WATER RESOURCES  
COMMISSION  
WATER POLLUTION SURVEY  
of the  
TOWNSHIP OF MARKHAM  
COUNTY OF YORK

1966

TD  
380  
.M37  
1966  
MOE

### Copyright Provisions and Restrictions on Copying:

This Ontario Ministry of the Environment work is protected by Crown copyright (unless otherwise indicated), which is held by the Queen's Printer for Ontario. It may be reproduced for non-commercial purposes if credit is given and Crown copyright is acknowledged.

It may not be reproduced, in all or in part, for any commercial purpose except under a licence from the Queen's Printer for Ontario.

For information on reproducing Government of Ontario works, please contact ServiceOntario Publications at [copyright@ontario.ca](mailto:copyright@ontario.ca)

TD  
380  
.M37  
1966

Report on a water pollution  
survey of the township of  
Markham, county of York.

80499

REPORT

on a

WATER POLLUTION SURVEY

of the

TOWNSHIP OF MARKHAM

County of York

February 1966

DIVISION OF SANITARY ENGINEERING

## INDEX

	<u>PAGE NO.</u>
INTRODUCTION	1
SUMMARY	1
RECOMMENDATIONS	3
I GENERAL	4
II WATER USES	5
(1) Water Supplies	5
(a) Municipal	5
(b) Private	6
(2) Recreational	7
(3) Agricultural	8
III WATER POLLUTION	9
(1) Drainage	9
(2) Sewage Disposal	9
(a) Proposed Sewage Treatment Facilities	10
(i) Municipal - John Street Water Pollution Control Plant	10
(ii) Private - Hengran Development Limited Subdivision	10
(b) Private - Loyal True Blue and Orange Home	10
(3) Industry	11
(a) Homey Farm Limited	11
(b) K.J. Beamish Construction Company Limited	12
(c) Markham Sand and Gravel Limited	12
(4) Refuse Disposal	13
(a) Proposed Municipal Landfill Site	13
(b) Proposed Private Landfill Site	15
(c) General Features of a Satisfactory Landfill Site	16

PAGE NO.

IV WATER QUALITY	17
(1) East Don River	17
(2) German Mills Creek	18
(3) Rouge River	19
GLOSSARY OF TERMS	20
WATER QUALITY AND EFFLUENT OBJECTIVES	20
TABLE - A - EAST DON RIVER - WATER QUALITY	22
TABLE - B - GERMAN MILLS CREEK - WATER QUALITY	24
TABLE - C - ROUGE RIVER - WATER QUALITY	27
TABLE - D - OUTFALL LOCATIONS	30
MAP	

# THE ONTARIO WATER RESOURCES COMMISSION

## REPORT

### INTRODUCTION

A water pollution survey of the Township of Markham was made by the Ontario Water Resources Commission. The purpose of the survey was to locate and record all significant sources of pollution. Where instances of water impairment are found the OWRC recommends that the necessary corrective action be taken to prevent water pollution.

The Commission gratefully acknowledges the assistance given by the York County Health Unit and the Township officials in performing this survey.

### SUMMARY

A water pollution survey was made of the Township of Markham. The field work was performed during the months of January and March 1965.

A review is presented of municipal and the proposed privately owned water works systems. The bacteriological quality of the water supplied by the municipal system appears satisfactory. The private water works owned by Hengran Developments Limited has not been made operative at this time of writing.

The Metropolitan Toronto and Region Conservation Authority proposes to construct a recreational area at the Milne Dam and Reservoir in the Village of Markham. No doubt, the largest

recreational use of these waters will be made at this point.

Extensive agricultural use is made of the Rouge River and its tributaries as it traverses the township. Care should be taken by the farm operators when it becomes necessary to spray pesticides or herbicides that this material is not discharged to a watercourse.

Storm sewers in the heavily urbanized areas and open ditches in the remainder of the township provide drainage for surface runoff water.

Presently there are no municipal or private sewage disposal systems operating within the township that would come under the supervision of the OWRC. There is however, a municipal sewage works, John Street Water Pollution Control Plant and a private sewage works, Hengran Development Limited Water Pollution Control Plant under construction. These plants have been approved by the Ontario Water Resources Commission.

The Township of Markham is relatively free of industrial wastewater problems. One industry, a small cheese factory, Homey Farm Limited has encountered difficulty in disposing of its wastewater. The owner is trying to resolve this problem and is presently investigating a number of methods of wastewater disposal.

The Township of Markham requested the Commission's opinion regarding the suitability of a sand and gravel pit in Lot 20, Concession 2 to be used for the disposal of refuse. Following a ground and surface-water investigation, the site was found to be

satisfactory from a surface-water perspective but more detailed information should be gained about the ground-water conditions prior to the use of this site for refuse disposal.

Warnock-Johnson Limited asked the Commission's opinion regarding the use of a site in Lot 16, Concession 8 for the disposal of refuse. While the site appears satisfactory from a surface-water point-of-view, it was deemed not suitable for sanitary landfill purposes due to the distinct possibility of pollution of the ground-water supplies.

A description of the area drained and the water quality of the East Don River, German Mills Creek, the Rouge River and tributaries of these watercourses are discussed in the water quality section of this report. Generally it may be said that these watercourses are not subjected to severe water impairment within the Township of Markham. The deteriorated water quality of German Mills Creek can be attributed to the Richmond Hill Water Pollution Control Plant effluent.

#### RECOMMENDATIONS

1. The Township of Markham should continue and expand its present water pollution abatement programme.
2. The recommendations presented in the report regarding the proposed sanitary landfill sites should be followed.

## I GENERAL

The Township of Markham, located immediately north of Metropolitan Toronto, is bounded on the south by Steeles Avenue East, Highway No. 11 on the west, the Township of Whitchurch on the north and the Township of Pickering on the east. The assessed population in 1964 according to the Ontario Department of Municipal Affairs 1965 Municipal Directory was 15,651..

The following information regarding the top soil resources of the Township of Markham was gained from a Soil Survey of York County, Report No. 19 of the Ontario Soil Survey, prepared by Experimental Farms Service, Canada Department of Agriculture and the Ontario Agricultural College.

Three main top soils namely; Milliken loam, Cashel clay and Chinguacousy clay loam predominate in the township..

Milliken loam is the imperfectly to moderately well drained member of the Woburn catena. The topography of the Milliken loam ranges from smooth gently sloping to smooth moderately sloping. Little erosion occurs on this type except where moderate slopes cause rapid runoff. Both external and internal drainage is moderately good.

Cashel clay The Cashel catena has developed on the high lime lacustrine clays underlain by heavy textured clay till. Smooth moderately sloping topography and good drainage are characteristic of this type. The solum is stonefree but usually contains small

bits of shale. The internal drainage is slow but there is sufficient fall towards the stream courses to permit adequate external drainage. The type has suffered from sheet erosion to some extent and gully erosion may require control measures, particularly along stream courses.

Chinguacousy clay loam - The Chinguacousy series is the imperfectly drained member of the Oneida catena. The parent material is fairly high in limestone but shale is present in such a quantity that it has a pronounced effect on the profile developed. The topography is smooth gently sloping and erosion is slight. Because of low runoff and slow percolation drainage is imperfect.

Aside from these three major types of top soil there are at least seven other materials found in the township. These materials occupy a very minor amount of the total surface area of the municipality.

The southern section of the municipality is experiencing a rapid urbanization, but for the main part the development remains rural.

## II WATER USES

### (1) Water Supplies

#### (a) Municipal

The municipality supplies water to an area bounded by Steeles Avenue East, Yonge Street, Hwy. No. 7 and Don Mills Road. The area north of Hwy. No. 7 between Yonge and Bayview is served

by the Township of Vaughan water works and the Town of Richmond Hill water works. The Township of Markham operates two plants called for the purpose of this report the Don Mills plant and the Steeles Avenue plant. A brief description of these two plants follows.

Don Mills Plant - This water works is owned and operated by the OWRC. The water is pumped from two drilled wells to a 100,000 gallon underground reservoir. A gas chlorinator adds chlorine to the water as it is pumped from a 25,000 gallon high lift pumpwell into the distribution system. A 250,000 gallon elevated storage tank is provided on the system.

Steeles Avenue Plant - Water is obtained from two drilled wells and pumped to an iron removal plant. At this plant the water is aerated, filtered (anthrafilt) and chlorinated before entering the distribution system.

Bacteriologically the water supplied by these works appears satisfactory.

(b) Private

Hengran Development Limited, Varley Village Subdivision - Unionville - The above developer proposes to build a water works to serve a subdivision being constructed west of the Police Village of Unionville.

(2) Recreational

A singular public recreational use is made of the water-courses in the Township of Markham. The Metropolitan Toronto and Region Conservation Authority operate the Bruce's Mill Conservation Area where a swimming area is provided.

In May of 1963 the Authority submitted a report regarding "Proposed Sewage Treatment Facilities, Unionville Area" to the Commission.

The Metropolitan Toronto and Region Conservation Authority proposes to construct the Milne Dam and Reservoir in the Village of Markham. The details of the Milne Dam and Reservoir were presented to the councils of the Township of Markham and the Village of Markham and the Authority subsequently received approval from the municipalities. A consulting engineering firm has been retained and a preliminary design of the Milne Dam and Reservoir has been prepared.

The Milne Dam is a low-level structure designed to pass floods of the magnitude of Hurricane Hazel centred over this branch of the Rouge River. The dam will create a lake of approximately forty acres. The Authority proposes a swimming area as well as other recreational development at this site.

The Authority is concerned about the establishment of sewage treatment facilities upstream from this site and in particular in the Unionville area.

In summation the MTRCA report submits the following:

1. The Ontario Water Resources Commission has been advised of the Authority's proposal since February 20, 1961.

2. The Authority maintains the position that sewage treatment facilities upstream from the Milne Dam and Reservoir must be designed in such a way to ensure the protection of the Reservoir for the proposed uses.

3. The Authority submits that, as a riparian owner, it has the right under law to ensure the protection of this stream for the proposed project.

4. It is further the opinion of the Authority that the Ontario Water Resources Commission has the jurisdiction to ensure the protection of the Authority's rights in this situation.

The Ontario Water Resources Commission is making every effort to ensure that all surface waters in the Province of Ontario receive adequate protection.

(3) Agricultural

Extensive agricultural use is made of the Rouge River as it flows through the Township of Markham. The river serves as a source of water supply for irrigation purposes in addition to providing drainage.

Fish Kill - Bonsheff and Sons who operate a market gardening farm in the Township of Whitchurch just north-east of the Community of Gormley caused a fish kill in a tributary of the Gormley

Branch. Reportedly, during spraying operations at this farm a small quantity of diluted Thiodan II ~~was~~ spilled to the watercourse causing mortality to a number of dace and minnows. Precautionary measures have been taken by the operators of the farm to ensure that there is no recurrence of this mishap.

### III WATER POLLUTION

#### (1) Drainage

Storm sewers are provided for portions of the township but mainly open ditches are relied upon for drainage of surface runoff water. This water drains to two main watersheds; (a) The Don River and its tributaries and (b) The Rouge River and its tributaries. A small portion of the southern half of the township is drained by the Highland Creek watershed.

#### (2) Sewage Disposal

An area of the township between Yonge Street and Bayview Avenue is served by sanitary sewers that discharge to the Metropolitan Toronto sewage disposal system. However, the main method of sewage disposal in the municipality is effected by means of septic tank and subsurface tile field installations.

The York County Health Unit reported that in general the existing private sewage disposal systems are satisfactory. The township will not issue an applicant a building permit, until such time as the health unit has indicated that the soil on the property is suitable for the proposed sewage disposal installation.

(a) Proposed Sewage Treatment Facilities - at present there are two water pollution control plants under construction that have received the approval of this Commission.

(i) Municipal - John Street Water Pollution Control Plant - The Township of Markham has made application to the OWRC for approval of this 0.75 mgd sewage works. Approval has been given the works which include provision for effluent polishing. It is understood that the present agreement entered into by the Township of Markham and this Commission does not preclude the Commission's right to refuse approval of future extensions to the plant. Further extensions to the plant will be allowed dependent upon the success of tertiary treatment to reduce the BOD to a level which would not impair the water quality in the receiving stream.

(ii) Private - Hengran Development Limited Subdivision - The sewage treatment plant proposed to serve the Hengran Development Limited Subdivision has been approved by the OWRC. The plant design calls for detention of flow during the summer season and an effluent discharge during the winter months. This method of sewage disposal should provide adequate protection for the Metropolitan Toronto and Region Conservation Authority proposed Milne Dam and Reservoir conservation area to be constructed downstream.

(b) Private - Loyal True Blue and Orange Home - It was reported that this home provides a needed service in that children

finding themselves in difficult situations are taken in and given care. The number of inhabitants varies.

Sanitary sewage from the home is disposed of by means of septic tank and subsurface tile field. This system was installed under the supervision of the York County Health Unit and they report that the system appears to be operating satisfactorily.

(3) Industry

There has been considerable industrial development in the Township of Markham and in most instances no water impairment problems have been experienced as a result of this development. The following is a review of existing and potential sources of pollution.

(a) Homey Farm Limited - At this site a cheese factory and cheese packaging plant are owned and operated by a Mr. R.A. Armstrong. Mr. Armstrong assumed responsibility for the industry during the fall of 1965 from the former owner-operator Mr. C. Jarolimek.

When the OWRC first reviewed this industry on January 22, 1965, a piggery and a cheese factory located at this site were discharging polluting wastes to the Little Rouge Creek. Since that time the piggery has been closed and the ownership of the cheese factory has changed. The cheese packaging plant does not present a water pollution problem as the wastes are satisfactorily disposed of by means of a septic tank and subsurface tile bed.

The new owner, Mr. Armstrong has suggested that he intends to try and arrange a suitable solution to the cheese factory waste disposal problem by arranging to truck the wastes to a municipal sewage works. Failing this, a waste disposal system will have to be provided to treat the wastes, which, depending on the economic considerations may or may not be done. If a satisfactory solution cannot be arrived at Mr. Armstrong has signified he will cease operations at this site.

(b) K.J. Beamish Construction Company Limited -

This company is located on the east side of Bayview Avenue and north of John Street. The OWRC investigated complaints of alleged pollution of a Don River tributary by this industry in March and April, 1962. The origin of a black oily substance was traced to the K.J. Beamish Construction Company Limited property.

It was reported that an unknown quantity of road primer had been discharged accidentally from one of the liquid hauling trucks in their yard. Some of this material flowed to a roadside ditch which drains to the watercourse.

Since this accident the company has made every effort to control the possibility of water pollution by close supervision of the treatment works.

(c) Markham Sand and Gravel Limited - This industry extracts gravel from a water bearing pit. There is no gravel washing and consequently no wastewater associated with the company.

Apparently the method of operation employed and the type of aggregate being removed makes the use of a gravel washer unnecessary.

(4) Refuse Disposal

The Township of Markham is presently giving consideration to establishing a new sanitary landfill site. The former site used was located near the Bruce's Mill Conservation Area.

(a) Proposed Municipal Landfill Site - The municipality proposes to use a sand and gravel pit which is located in Lot 20, Concession 2, Township of Markham, adjacent to 17th Avenue and about 2,000 feet west of the community of Headford as a refuse disposal area.

A ground-water investigation was made by the Surveys and Projects Branch of the Division of Water Resources, Ontario Water Resources Commission to determine if any hydraulic connection exists between the site and adjacent and underlying aquifers.

The pit is situated within a prominent hill, which is about 50 feet higher in elevation than the Headford area. The pit is extensive, covering an area of about 800 feet square, and ranges in depth from 10 to 25 feet.

The following conclusions were drawn from the study performed. The proposed site appears to be an isolated deposit of stratified materials, which extends to a shallow depth, and is underlain by silty till. A hydraulic connection between the proposed site and the aquifer in which Richmond Hill Well No. 5 is located is not

evident. However, there is some possibility of a hydraulic connection with the shallow aquifer at Headford. The movement of ground water beneath the proposed site may be easterly towards the community of Headford. The preliminary assessment of the site with respect to its intended use as a sanitary landfill indicates that it may be suitable for such purposes but there is insufficient evidence to be certain of this.

As the site is located near an area capable of yielding municipal ground-water supplies, and a community obtaining water from private wells, it is recommended that prior to the establishment of any landfill operation at the site a limited test-drilling programme be undertaken to establish the existing overburden and ground-water conditions in more detail. The programme should be directed specifically towards obtaining information regarding the depth and extent of the stratified materials and the location of the water table, in the vicinity of the site. This would involve the drilling of several bore holes to depths in the order of about 40 feet.

If it is determined that the stratified materials terminate at a shallow depth and are limited in lateral extent and that the water table is at a sufficient depth to provide for an adequate zone of aeration, the site would be satisfactory for sanitary landfill purposes. If the site becomes operational, water samples should be collected periodically from a suitable observation well near the site and between it and the community of Headford to allow for a regular

check of the ground-water quality.

(b) Proposed Private Landfill Site - Warnock-

Johnson Limited requested a field investigation of a proposed sanitary landfill site in Lot 16, Concession 8, Township of Markham. The proposed site is a sand and gravel pit about one-half mile east of Highway No. 48 and approximately 500 feet north of 16th Avenue. The pit is irregular in shape, extensive, being about 800 feet by 600 feet, and relatively shallow, with a depth generally less than 20 feet to the pit floor.

A depression located in the westerly end of the pit had been formed by drag-lining for sand and gravel to a depth of about 15 feet below the general elevation of the pit floor. Water filled the depression to within one foot of the pit floor at the time of the investigation on June 15, 1965.

The following conclusions are derived from a study conducted by the Surveys and Projects Branch, Division of Water Resources, of the collected field data and available well records.

The stratified materials exposed at the proposed site may extend southward and beneath the nearby homes located on 16th Avenue. It is possible that the shallow wells may penetrate the extension of these materials.

Ground-water movement appears to be southerly from the site toward 16th Avenue. Contaminants introduced at the site would move in a similar direction.

The physical characteristics of the proposed site are presently such that a sanitary landfill operation not affecting ground-water quality is unlikely. Essentially, the water table underlies the site very closely, and pollutants would move through the permeable materials rapidly and likely reach the water table before sufficient oxidation could occur.

The proposed site is not suitable for sanitary landfill purposes due to the distinct possibility of pollution of the ground-water supplies of the several homes located near the site.

It was recommended that the proposed site not be used for sanitary landfill purposes under present conditions.

(c) General Features of a Satisfactory Sanitary Landfill Site - In order that a disposal site be acceptable from a point of view of safeguarding ground water, it should embrace certain of the following characteristics:

The site should be in, or adjacent to, an area where ground water discharges.

The soil beneath the site should be relatively impermeable to downward movement of percolating fluids.

The site should be downstream from and as far distant as possible from large water wells.

The zone of aeration beneath the site should be of sufficient thickness to provide an oxidizing environment of reasonable

duration.

It is very difficult to suggest suitable characteristics for sanitary landfill sites to achieve a satisfactory degree of protection for surface waters because of the variance in the respective proposals. However, it will suffice to say that these sites should be so situated that a water pollution problem will not result from liquid or solid wastes being discharged to the waters.

#### IV WATER QUALITY

##### (1) East Don River

The East Don River, German Mills Creek, Rouge River and tributaries of these main watercourses provide drainage of surface water for the Township of Markham. The East Don River drains a portion of the Township of Vaughan and receives a treated effluent from the Department of Lands and Forests Southern Research Station Water Pollution Control Plant prior to entering the Township of Markham at Yonge Street. The East Don River receives water from several small watercourses as it flows through the south-west corner of the township discharging at Steeles Avenue East and Bayview Avenue to the Township of North York. In draining this small area of the Township of Markham surface runoff water is received from a number of storm sewers in the Police Village of Thornhill. These storm sewer outlets were inspected and it was found that there were no dry-weather flows.

The laboratory results of samples collected from this stream and its tributaries since 1957 to present are appended as Table A. An analysis of these results indicates that while the chemical quality is satisfactory the bacteriological quality is in excess of the Commission's objective of the water entering the Township of Markham. The Thornhill Branch tributary contains excessive concentrations of 5-Day BOD and coliform organisms. However, prior to discharging to the Township of North York the chemical quality of the East Don River is satisfactory while the bacteriological quality remains in excess of the Commission's objective.

(2) German Mills Creek

This watercourse rises north of Richmond Hill and flows through this town receiving the treated effluent from the Richmond Hill Water Pollution Control Plant. Other than the waste loadings from this sewage works the stream receives minor amounts of waste water from greenhouses within the town. South of Richmond Hill, German Mills Creek flows through the Township of Markham to its confluence with the East Don River in the Township of North York. Surface runoff water is discharged via municipal storm sewers and open ditches to this creek as it traverses the Township of Markham.

The laboratory results of samples collected from this stream from 1957 to present are appended as Table B.

Analysis of the water quality data reveals that the bacteriological and chemical parameters are deteriorated following

the addition of the Richmond Hill Water Pollution Control Plant effluent to German Mills Creek. The chemical quality of the stream remains in excess of the Commission's maximum objective of not greater than 4 ppm 5-Day BOD while within the Township of Markham.

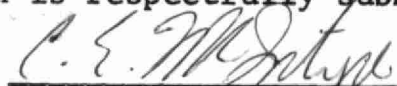
(3) Rouge River

This watercourse provides drainage for the largest area of the township. The Rouge River and its tributary Beaver Creek rise north-east of Richmond Hill, receiving surface runoff water from municipal storm sewers in the north-east section of the town. The stream flows through the township receiving surface runoff water from storm sewers in the Police Village of Unionville and the Village of Markham as well as a treated effluent from the Village of Markham Water Pollution Control Plant. A number of watercourses, some of which are: Gormley Branch, Bruce Creek and Little Rouge Creek drain the northern section of the township and discharge to the Rouge River.

The laboratory results of the samples collected from the Rouge River and its tributaries within the Township of Markham indicate that the chemical and bacteriological quality is satisfactory. Localized impairment of the Little Rouge River is realized as a result of wastes discharged from the Homey Farm Limited Cheese Factory. This particular problem was discussed in greater detail in the Water Use section of this report.

All of which is respectfully submitted,

Approved by

  
C.E. McIntyre, P.Eng.,  
District Engineer,  
Div. of Sanitary Engineering.

/elb

Prepared by:  
D.A. Murray Wilson,  
Engineer's Assistant.

## GLOSSARY OF TERMS

Bacteriological Examinations - The Membrane Filter technique is used to obtain a direct enumeration of coliform organisms. These organisms are the normal inhabitants of the intestines of man and other warm-blooded animals. They are always present in large numbers in sewage and are, in general, relatively few in number in other stream pollutants. The results are reported as M.F. coliform count per 100 millilitres.

Biochemical Oxygen Demand (BOD) - The BOD test indicates the amount of oxygen required for stabilization of the decomposable organic matter found in the sewage, sewage effluent, polluted waters or industrial wastes by aerobic biochemical action. The time and temperature used are 5 days and 20°C respectively.

Solids - The analyses for solids include tests for total, suspended and dissolved solids. The former measures both the solids in solution and in suspension. Suspended solids indicate the measure of undissolved solids organic or inorganic nature, whereas the dissolved solids are a measure of those solids in solution.

Turbidity - Turbidity is a measure of the fine suspended solids in water such as silt and finely divided organic matter. Where suspended solids values approach 20 parts per million or less, the results are usually reported as turbidity in silica units.

## WATER QUALITY AND EFFLUENT OBJECTIVES

The desirable objectives for all surface waters in the Province of Ontario are as follows:

5-Day BOD	- not greater than 4 ppm
M.F. Coliform Count Median Value	- not greater than 2,400 per 100 ml.
Phenolic Equivalents - Average	- not greater than 2 ppb
- Maximum	- not greater than 5 ppb
pH Range	- 6.7 to 8.5

A few pertinent maximum concentration limits of contaminants in storm sewers, sewage treatment plant and industrial waste effluents are listed below. It is noted that adequate protection for surface waters, except in certain specific instances influenced

by local conditions, should be provided if the following concentrations and pH range are not exceeded.

5-Day BOD	- not greater than 15 ppm
Suspended Solids	- not greater than 15 ppm
Phenolic Equivalents	- not greater than 20 ppb
Ether Solubles (oil)	- not greater than 15 ppm
pH Range	- 5.5 to 10.6

TABLE A-1

EAST DON RIVER - WATER QUALITY

Sampling Point Description	Date	No. of Samples	<u>Chemical Quality</u>			<u>Susp.Solids</u>			<u>Bacteriological Quality</u>			
			5-Day BOD (ppm)			(ppm)			Coliform Count per 100 ML			
			Min.	Max.	Avg.	Min.	Max.	Avg.	No. of Samples	Min.	Max.	Log.Avg.
DE-19.4 Don River at Yonge St.	Nov./58 Aug./65	11	0.6	3.6	2.2	2	32	10	11	80	220,000	3,903
DEL-18.4 Langstaff Branch Up- stream from Jct.with East Don River.	Nov./58 Aug./65	9	1.3	5.0	2.5	2	71	16	9	9	130,000	1,364
DET-17.3 Thornhill Branch at Bayview Ave.	Nov./58 Aug./65	11	1.2	16.0	4.5	3	842	148	12	30	179,000	3,049
DE-17.2 East Don River at Steeles Ave. East.	Oct.-Dec 1957								2	0	10,000	-
	Jan.-Nov. 1958								10	100	5,000	714
	Apr.-Dec. 1959								9	70	36,000	2,130
	Feb.-Dec. 1960								11	60	281,000	1,824
	Feb.-Nov. 1961								9	18	45,000	876
	June/62 Oct./63								7	480	36,000	1,914

TABLE A-2

EAST DON RIVER - WATER QUALITY

Sampling Point Description	Date	Chemical Quality						Bacteriological Quality				
		No. of Samples	5-Day BOD (ppm)			Susp.Solids (ppm)			Coliform Count per 100 ML			
			Min.	Max.	Avg.	Min.	Max.	Avg.	No. of Samples	Min.	Max.	Log.Avg.
DE-17.2	Apr./64											
East Don River at Steeles Ave. East.	Aug./65											
	Nov./58	10	1.2	2.7	2.0	2	38	15	-	-	-	-
	Aug./65											

TABLE B-1

GERMAN MILLS CREEK - WATER QUALITY

<u>Description</u>	<u>Date</u>	<u>No. of Samples</u>	<u>Chemical Quality</u>			<u>Susp.Solids</u>			<u>Bacteriological Quality</u>			
			<u>5-Day BOD</u>			<u>(ppm)</u>			<u>Coliform Count</u>			
			<u>Min.</u>	<u>Max.</u>	<u>Avg.</u>	<u>Min.</u>	<u>Max.</u>	<u>Avg.</u>	<u>No. of Samples</u>	<u>per 100 ML</u>		<u>Log.Avg.</u>
DEG-25.0 German Mills Creek at Yonge St.	Nov./58											
	Aug.18/65	9	0.9	4.9	2.3	2	24	11	9	256	160,000	4,428
DEG-22.6 German Mills Creek at Observatory Lane.	Oct. 3/57	10	1.2	20.0	6.8	6	108	32	10	10	10,000	158
	Dec.19/57											
	Jan. 8/58	17	2.2	54.0	15.5	16	530	80	19	10	1,300,000	298
	Nov. 6/58											
	Sept.21/59	6	22.0	67.0	37.7	8	48	24	6	10	150,000	1,305
	June 19/62											
	Apr.16/63	35	4.4	66.0	24.6	4	132	27	22	0	9,000,000	16,940
	Dec.30/63											
	Jan. 6/64	18	1.4	37.0	12.6	2	52	19	20	0	14,200	11
	Nov.18/64											
	Jan. 6/65	12	6.4	46.0	19.6	1	72	31	14	0	14,800	6
	Dec.20/65											
	May 26,27, 28, 1965*	12	13.0	79.0	38.3	51	68	60	12	60,000	5,000,000	415,500

\* 48 Hour Composite Samples.

TABLE B-2

GERMAN MILLS CREEK - WATER QUALITY

Sampling Point Description	Date	No. of Samples	Chemical Quality			Susp.Solids			Bacteriological Quality			
			5-Day BOD (ppm)			(ppm)			Coliform Count per 100 ML			
			Min.	Max.	Avg.	Min.	Max.	Avg.	No. of Samples	Min.	Max.	Log.Avg.
DEG-22.2 German Mills Creek at 16th Ave.	Oct. 3/57	10	1.0	21.0	5.9	6	210	39	8	10	100,000	1,778
	Dec.19/57											
	Jan. 8/58	14	2.2	32.0	9.9	4	300	47	15	0	1,800,000	1,404
	Nov. 6/58											
	Sept.21/59	6	10.0	58.0	27.7	8	76	24	6	30	295,000	21,050
	June 19/62											
	Apr.16/63	36	4.4	76.0	21.0	3	151	25	20	0	22,000,000	153,900
	Dec.30/63											
	Jan. 4/64	18	1.4	31.0	12.5	5	58	18	21	0	130,000	26
	Nov.18/64											
	Jan. 6/65	12	4.4	49.0	21.6	8	127	32	14	0	14,400	16
	Dec.20/65											
	May 26,27	12	12.0	68.0	35.8	44	66	56	12	70,000	640,000	252,800
	28, 1965*											

\* 48 Hour Composite Samples.

TABLE B-3

GERMAN MILLS CREEK - WATER QUALITY

Sampling Point Description	Date	No. of Samples	Chemical Quality			Susp.Solids			Bacteriological Quality			
			5-Day (BOD)			(ppm)			Coliform Count			
			Min.	Max.	Avg.	Min.	Max.	Avg.	No. of Samples	per 100 ML		Log.Avg.
										Min.	Max.	
DEG-21.0 German Mills Creek at Bayview Ave.	Jan./58	8	4.1	67.0	26.7	8	44	22	10	320	1,200,000	14,790
	June/62											
	1963	31	2.8	45.0	17.4	4	154	21	18	0	8,900,000	45,570
	1964	20	1.2	37.0	12.7	4	44	17	21	0	230,000	26
	1965	12	6.4	32.0	16.2	5	129	35	13	0	9,200	33

TABLE C-1

ROUGE RIVER - WATER QUALITY

Sampling Point Description	Date	No. of Samples	Chemical Quality			Susp.Solids			Bacteriological Quality			
			5-Day BOD			(ppm)			Coliform Count			
			Min.	Max.	Avg.	Min.	Max.	Avg.	No. of Samples	per 100 ML		Log.Avg.
										Min.	Max.	
R-18.5 Rouge River at Hwy.#7 East of Woodbine Ave.	Nov./58 Aug./65	8	0.8	3.6	1.9	2	14	7	8	10	76,000	340
R-20.0 Rouge River at 16th Ave.	Nov./58 Aug./65	8	0.9	4.2	2.5	2	20	8	8	20	22,000	318
R-16.0 Rouge River at 6th Line.	Nov./58 Aug./65	7	0.6	3.9	2.0	4	20	13	7	10	64,000	731
RBG-17.0 Gormley Branch at 16th Ave.	Nov./58	8	1.5	3.9	2.5	1	20	13	8	10	44,000	265
RB-16.8 Bruce Creek at 16th Ave.	Oct./62 Aug./65	3	1.6	4.0	2.8	4	11	7	3	22	700	314
RB-16.0 Bruce Creek at 6th Line.	Oct./62	3	1.6	3.1	2.3	2	18	9	3	320	900	520

TABLE C-2

## ROUGE RIVER - WATER QUALITY

Sampling Point Description	Date	No. of Samples	Chemical Quality			Susp.Solids			Bacteriological Quality			
			5-Day BOD (ppm)			(ppm)			Coliform Count per 100 ML			
			Min.	Max.	Avg.	Min.	Max.	Avg.	No. of Samples	Min.	Max.	Log.Avg.
RB-15.7(T) Hengran Development Ltd. WPCP	Feb.10/66	Not In Operation At This Time										
R-10.7 Rouge River at 14th Ave.	Oct./62 Aug./65	3	3.0	7.0	4.9	8	50	25	3	86	7,100	668
R-9.5 Rouge River at Steeles Ave. East.	Nov./58 Aug./65	8	1.1	3.8	2.8	4	20	11	8	10	19,000	231
RLR-20.1 Ringwood Branch down- stream from Jct. of Hwy's No. 48 and 47	Nov./58 Aug./65	7	1.0	3.0	1.7	2	20	12	7	10	18,000	1,089
RL-15.5 Little Rouge River at Hwy. No. 48	Nov./58 Aug./65	8	1.1	4.4	2.5	1	12	5	8	10	30,000	501
RL-10.3 Little Rouge River at Hwy. No. 7	Nov./58 Aug./65	8	1.4	3.9	2.5	1	16	5	8	47	23,200	538

TABLE C-3

ROUGE RIVER - WATER QUALITY

Sampling Point Description	Date	Chemical Quality				Susp.Solids			Bacteriological Quality			
		No. of Samples	5-Day BOD (ppm)			(ppm)			No. of Samples	Coliform Count per 100 ML		
			Min.	Max.	Avg.	Min.	Max.	Avg.		Min.	Max.	Log.Avg.
RL-6.6 Little Rouge River at Steeles Ave. East.	Nov./58 Aug./65	9	1.0	4.2	2.2	1	18	5	9	0	7,700	109

TABLE D-1

OUTFALL LOCATIONS

<u>Sampling Point No.</u>	<u>Location and Description</u>	<u>Date Examined or Sampled</u>	<u>5-Day BOD (ppm)</u>	<u>Total (ppm)</u>	<u>Solids Susp. (ppm)</u>	<u>Diss. (ppm)</u>	<u>Turbidity in Silica Units</u>	<u>M.F.Coliiform Count per 100 ML</u>
DET-17.3 W	30" Ø corrugated iron storm sewer north of Steeles Ave. East, and east of Bayview Ave.	Mar.24/65	No Flow Noted					
DET-17.3 W-1	33" Ø concrete storm sewer at Pinevale just east of Grandivew.	Mar.24/65	No Flow Noted					
DET-17.3 W-2	21" Ø concrete storm sewer at 56 Almond north of Pinevale.	Mar.24/65	No Flow Noted					
DET-17.3 W-3	48" Ø concrete storm sewer at the end of Dalmeny Rd.	Mar.24/65	No Flow Noted					
DET-17.4 W	54" Ø concrete storm sewer just east of Henderson Ave. south side of railway tracks.	Mar.24/65	No Flow Noted					

TABLE D-2

OUTFALL LOCATIONS

<u>Sampling Point No.</u>	<u>Location and Description</u>	<u>Date Examined or Sampled</u>	<u>5-Day BOD (ppm)</u>	<u>Total (ppm)</u>	<u>Solids Susp. (ppm)</u>	<u>Diss. (ppm)</u>	<u>Turbidity in Silica Units</u>	<u>M.F. Coliform Count per 100 ML</u>
DET-17.4 W-1	30" Ø concrete storm sewer at Henderson Ave. south side of Thornhill Branch.	Mar.24/65	No Flow Noted					
DET-17.4 W-2	36" concrete storm sewer at Henderson Ave. north bank of Thornhill Branch.	Mar.24/65	No Flow Noted					
DET <sub>1</sub> -17.5 W	24" Ø concrete storm sewer at the west end of Fairway Heights Crescent.	Mar.24/65	No Flow Noted					
DET <sub>1</sub> -17.5 W-1	18" Ø concrete storm sewer on the west side of Fairway Heights Drive.	Mar.24/65	No Flow Noted					
DET <sub>1</sub> -17.5 W-2	21" Ø concrete storm sewer at the north end of Fairway Heights Drive.	Mar.24/65	No Flow Noted					

TABLE D-3OUTFALL LOCATIONS

<u>Sampling Point No.</u>	<u>Location and Description</u>	<u>Date Examined or Sampled</u>	<u>5-Day BOD (ppm)</u>	<u>Total (ppm)</u>	<u>Solids Susp. Diss. (ppm) (ppm)</u>	<u>Turbidity in Silica Units</u>	<u>M.F. Coliform Count per 100 ML</u>
DET2-17.4 W	24" concrete storm sewer east of Fairway Heights Dr. and just north of Steeles Ave. East.	Mar.24/65	No Flow Noted				
DE-18.1 W	42" concrete storm sewer south of Doncrest Dr. and just east of Bayview Ave.	Mar.24/65	No Flow Noted				
DEL-19.9 T	Langstaff Farm STP effluent.	Aug.18/65	Not In Operation				

# TOWNSHIP OF WHITCHURCH



## LEGEND

- DE-17-2 — SAMPLING POINT SHOWING STREAM AND MILEAGE
- DE-18-1 — STREAM AND MILEAGE AT OUTFALL
- W — STORM SEWER
- T — SEWAGE TREATMENT PLANT
- I — INDUSTRIAL SEWER

ONTARIO WATER RESOURCES COMMISSION

## TOWNSHIP OF MARKHAM WATER POLLUTION SURVEY 1966

SCALE: 0 1/2 1 2

DRAWN BY: W.R.E. DATE: AUGUST 1965

CHECKED BY: DRAWING No: 65-108